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ABSTRACT

Non-learners are externally controlled students conditioned to expect both failure and success. They are aware of their basic skill deficiencies yet know that passive behavior in high school classrooms has resulted in passing grades. Given the nature of the non-learner, developmental educators cannot achieve positive results through manipulating only external variables in the teaching-learning process (e.g., instructional styles and methods), but must consider thinking skills and motivation as well. Thinking skills include basic analytical reasoning and higher order intellectual processes, such as interpretation and application. Instructors should evaluate students' thinking skills and devote class time to improving reasoning. Motivation can be divided into purpose motivation (i.e., a reason for doing something) and climate motivation (i.e., conditions under which something is done). Instructors should help students discover their interests and motives for learning and should key instruction to the level of student interest and purpose. The creation of a positive environment for learning necessitates mutual respect between teacher and learner and an understanding by both of their teaching and learning styles. In addition, the process of instruction must be relevant. That is, the instructor must organize the course around meaningful measurable objectives that are directly related to the student's perceived purposes. (Appendices include sample exercises and references.) (Author/KL)

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TREATING THE NON-LEARNER:

PENICILLIN OR PLACEBO?

by

Carl B. McDonald

and

Keith Cotroneo

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The Non-Learner: A Collegiate Paradox

Developmental education is big business. Massive amounts of dollars and man-hours have in the past two decades or so gone into the formulation of policies, the construction of programs, the creation of teaching machines, the writing of texts, and the production of various kinds of software materials--all geared toward attacking the problem of the student who has not learned what the educational "system" maintains that he should have learned. In many post-secondary institutions, relatively new departments or divisions have cropped up to meet the needs of large numbers of academically deficient students. In past years these students would not have been admitted to most colleges and universities; however, the modern open-door policy has contributed to a collegiate paradox: increasing numbers of students who either have not learned, cannot learn, or who do not want to learn are enrolling in our institutions of higher education. No longer can post-secondary educators assume that their students are already well-versed in the basic skills areas of reading, writing and mathematics. Indeed, many of us can no longer assume that our students even want to be in college.

In the following pages we will discuss our own thoughts and actions as we have attempted to understand the paradox of the collegiate non-learner. All of our research, writing, and course design has focused on the

following questions: Who is the non-learner and how did he get that way? How does he differ from the "average" successful student? How has he been dealt with thus far in post-secondary institutions? What can instructors of remedial students do to make the non-learner want to learn--and how can instructors teach him how to learn? What are the important factors that influence the teaching/learning relationship?

As others have maintained repeatedly, we can offer no foolproof solutions. Rather, we have here put together some brief albeit, we hope, cogent remarks intended to foster serious consideration of the dilemma remedial educators share--how to deal at the college level with students who, for the most part, give every appearance of not belonging in college. Our remarks are not intended to be inclusive of all aspects of developmental education. We feel, on the other hand, that they are directed at the basics--the heart--of the theory of developmental education.

Who is the collegiate non-learner?

Undoubtedly, the most widely used starting point for identifying the collegiate non-learner is the Scholastic Aptitude Test or some similar college entrance test. Individual institutions or statewide systems may then resort to scores on various other tests of the basic skills areas of reading, mathematics, and English to determine which students are academically deficient enough to require remediation.

While the use of such standardized tests is normal procedure, none of the afore-mentioned types of tests tells us much about our remedial students beyond the fact that they cannot perform adequately on our tests.

Experience has shown us that most academically deficient learners share certain learning characteristics. For instance, such students can benefit from our manipulation of certain of the external variables of any learning/teaching experience: the amount of time allotted to learning, the difficulty level of the material presented, the frequency of tests, the amount of individual attention given to each student and so on. It is important, however, that we know more about the non-learner than what our manipulation of such external variables has taught us.

In our attempt to discover some specific learning-teaching variables that contribute to the internal drive of the student, we turned to learning-style theory as a possible answer to the dilemma of the non-learner. Of the several instruments available for determining student learning styles, The Canfield Learning Style Inventory is probably the most thorough, best researched, add most widely used. We administered this inventory to two sample groups--a group of academically deficient college students required to enroll in remedial courses in English, reading and mathematics; and a group of academically "average" students enrolled in the regular college program. In comparing the

mean profiles of the two groups, we found significant differences in two of the conditions scales of the inventory: preference for authority and preference for instructor affiliation.

The remedial group showed a marked preference for authority and an equally marked rejection of instructor affiliation. Apparently, the deficient learners tend to view the instructor as a task-master, disciplinarian, or "cop" in the classroom. This interpretation would explain the lack of desire for affiliation with the instructor. It appears, too, that the non-learner sees his instructors as external controlling factors in the classroom setting. For us, one logical conclusion--a conclusion reached by other researchers (Rotter, 1966; Cooke, 1977; Whyte, 1978)--is that we were noting a difference in the locus of control of remedial and non-remedial students. To further examine the extent of a locus of control difference in our two sample groups, we administered the Nowicki-Strickland Locus of Control and SPPI I/E SCALE measurements to the two groups.

The locus of control differential was highly significant and was as one might suspect. The "average" group norm matched the test sample norm for grade 12, while the remedial group norm compared to that of typical ninth graders. To interpret further, we found that the

non-remedial group was far more internally controlled than the remedial group. Our typical non-learners, then, obviously regarded themselves as largely at the mercy of external authority or circumstances beyond their control. The Nowicki-Strickland and SPPI results had substantiated the locus of control pattern that we saw in the results of the learning style inventory.

What we had learned about the difference in the locus of control of our remedial and non-remedial groups led us to construct a continuum of learner maturity as it relates to instructor authority or control. (Figure 1)

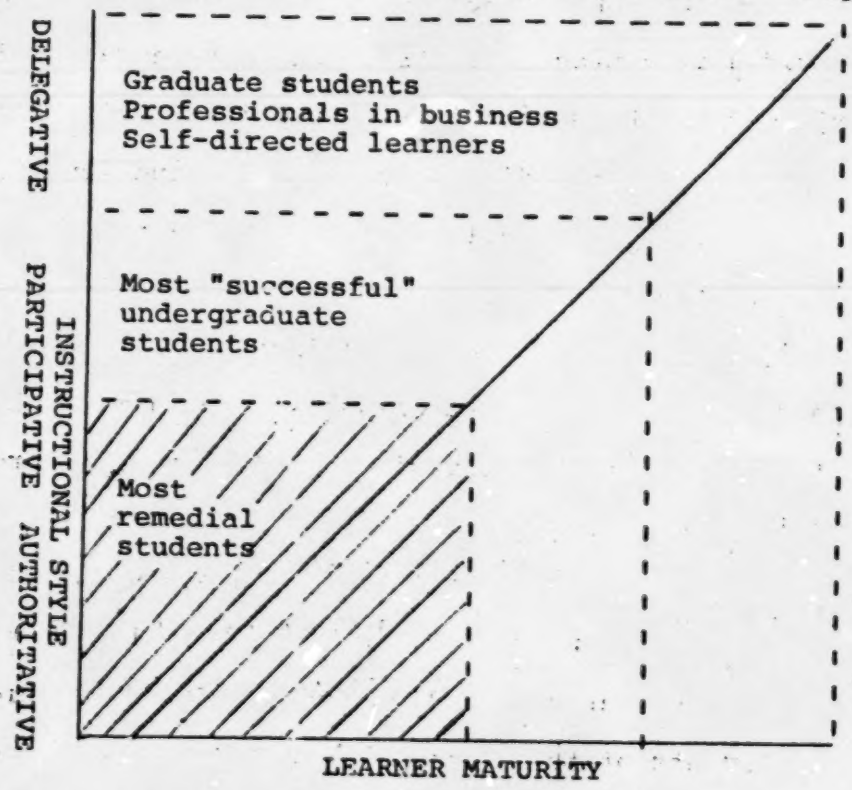


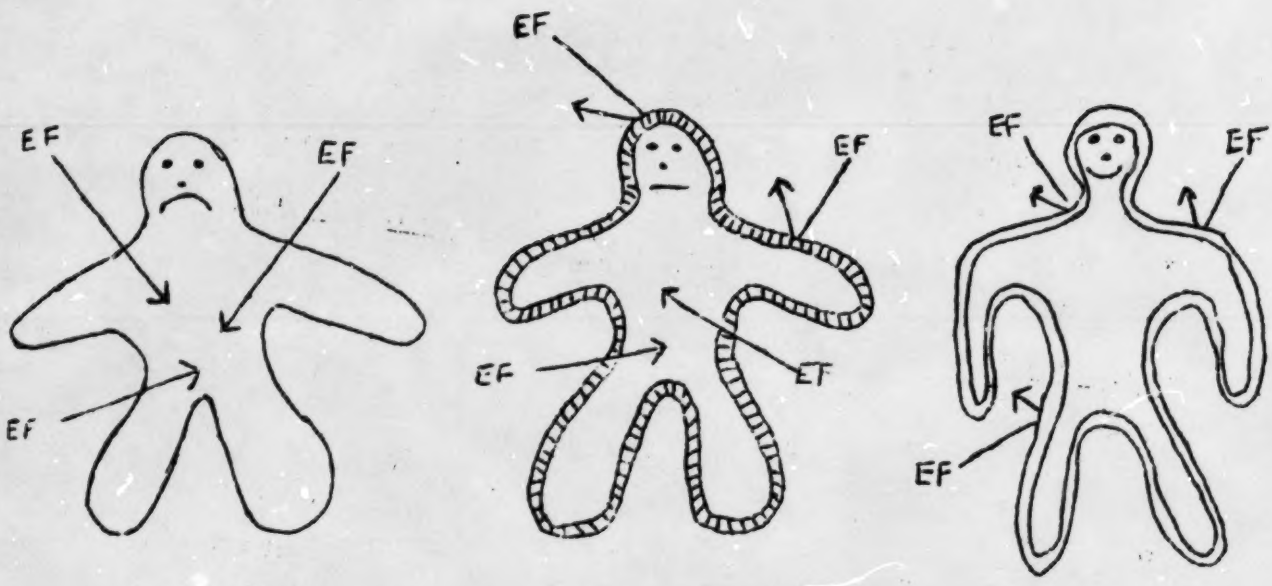
Figure 1

As the graph depicts, instructional style may vary in relation to the maturity of the learner. For example, students on the lower end of the maturity continuum demand structure and benefit from an authoritative, directive instructional style. As students progress to the higher levels of internalized learning, they come to view the teacher as a resource person or facilitator and are able to function independently. It is interesting to note, however, that many of the instructional methods used in developmental programs are out of sequence with the learner maturity scale. Individualized program instruction, for instance, is derived from the delegative instructional mode. To illustrate the absurdity of such an instructional methodology on the developmental level, consider the following analogy: let us picture a football team practice session with the coach instructing his team members on the various techniques of the game. The athletes under the supervision of the coach are progressing and learning the game and its strategies. However, on the sidelines there is an odd seeming fellow who is tripping and fumbling and falling; he appears to be making a half-hearted effort at mimicking the movements of the other players. You see, the sidelined individual, whom we will call Johnny, is lacking the basic football skills of the game, and the coach

in his wisdom has allowed this faulty fellow to work independently and progress at his own pace. Visualize now that we leave the practice and return two weeks later. The team members are obviously more proficient by then, but we see that poor Johnny is still struggling on his own and appearing somewhat dejected. Again we leave and return two weeks later for the opening game. By now the team is really sharp and functioning with great precision. However, we find that Johnny's place on the sideline is now empty and, upon further inspection, we find Johnny selling peanuts in the stands and telling his friends that he never really liked to play football anyway.

Obviously, the faulty fellow in the story would have benefited from a coaching style which better suited his needs. Similarly, when instructing developmental students, we must provide an instructional style appropriate for the individual's level of learner maturity. The role of the developmental instructor, then, is to provide initially the structure and direction desired by the learner. However, we feel that it is important for the teacher to attempt to move his students along the learning continuum and progressively to challenge the learner to move to higher levels of learner maturity. What we are suggesting is that teachers assist their students in taking control of their learning process.

The extreme lack of discipline remedial students demonstrate over their learning led us to regard our remedial students as externally controlled and in need of "protection" from impinging outside forces. The more mature learner, on the other hand, appeared to have internalized some method of turning away outside forces or using such forces to his benefit. But what was most interesting to us was our increasing awareness that most remedial programs, in an attempt to shield the non-learner from failure while striving to teach him something, created an "artificial" barrier to counteract failure. Typically, traditional remedial programs had most often manipulated the pace of instruction, the materials of instruction, the means of presentation, grading systems, and the like. A common concern became the question of whether or not the coddled remedial student could make the necessary transition to the environment of the traditional classroom with its rapid pace, lecture method, and oftentimes sophisticated texts and research materials. Figure 2 depicts our concept of the three types of students we are concerned with:



A

Typical remedial student controlled by external forces (i.e., instructor, rules, subject matter, peers, time constraints). No shield

B

Remedial student having undergone "the treatment" (self-pacing, individualized instruction, self-concept counseling, non-punitive grading). External shield

C

Successful student with internalized control. "Master of his own fate."

Figure 2

The "successful" student (figure 2C) is an internally controlled individual who somehow can use the subject matter, the instructor/resource person, and his own time for academic achievement. He has, in short, internalized a personal management system that enables him to make systematic progress toward an academic goal.

At this point in our research we turned to an examination of student expectancy of success or failure, since one of the scales on The Canfield Learning Styles Inventory deals specifically with expectancy. In view of what we had learned about our remedial group's locus of control, we were somewhat confident that we could predict a significant difference in expectancy for our two sample groups. Our rationale was that underprepared students who felt externally controlled, almost fatalistic as it were, would predict failure for themselves--in spite of expert testimonials, such as Martha Maxwell's, that "many underprepared students are very confident in their ability to succeed in college."

We were at first surprised to find that our remedial and non-remedial group profiles were actually identical. Both groups ranked at about the 50th percentile according to Canfield's norming data for expectancy of success; thus, both groups appeared to represent the typical student. How could we explain such an occurrence--an occurrence that we felt tended to contradict our findings on locus of control? After some discussion it struck us that our findings were not contradictory, that, indeed, the expectancy data actually supported the remedial student's notions of external control. The answer to the riddle undoubtedly lies in the student's classroom experiences before his enrollment in college.

High School Treatment of the Non-Learner: Penicillin or Placebo?

Sugar pill solutions have become the dominant treatment for the non-learner. In secondary institutions, educators have traded off learning for discipline. The non-learner has found that passivity is rewarded as much as is active participation. Teachers, frustrated by their inability to reach the deficient student, have resorted to an agreement with the students which reinforces learner passivity and discipline, rather than active involvement in the classroom. As a result, students learn that their grades do not necessarily have a relationship to academic effort, but can be directly affected by classroom behavior. In effect, students learn that by displaying passive, non-disruptive behavior in the classroom they will pass and will therefore be successful. The non-learner expects to succeed, and why shouldn't he? He has consistently received the academic rewards of the system in which he participates. The non-learner predicts success, unfortunately, however, not on the basis of past academic achievements, but on the basis of social promotion. Therefore, non-learners entering post-secondary institutions will behave in their typical passive style expecting the same consistently high rewards.

So, the "placebo" administered to the student has been and continues to be many years of conditioning to the notion that displaying non-disruptive behavior, going through the motions of attempting to do school-work, being socially acceptable to one's peers, and having the patience to sit through year after year of classes, will result in a high school diploma. Thus, for too many (if not most) students the process of "education" is what is important, not the acquisition of knowledge or skills. Hence, students tend to be process oriented rather than results oriented. How one goes through the motions is far more important than why he does or what the outcome will be.

The ideal outcome of education, of course, is an individual who will contribute to society through (1) good citizenship, which implies knowledge of our political system, values, and culture, through (2) a social/psychological adjustment which will insure that the individual can perceive his own life as meaningful and fulfilled while recognizing the needs of others for personal growth, and through (3) the acquisition of salable vocational/professional skills that will allow the individual to become a part of the world of work. In other words, the ideal outcome of education is, as it should be, a result. In business terms the outcome would be a product. All too often, however, educators lose sight of results and concentrate, as we have said, on processes.

Some thoughts on the Treatment of the Non-Learner in Post-Secondary Institutions

In an effort to motivate the non-learner, post-secondary teachers have manipulated virtually every environmental variable related to the academic process. The theory is that by providing the right type of instructional method we might help the non-learner find his own personal niche, become comfortable with that learning mode, and therefore progress. The following list represents a number of instructional techniques employed by educators involved with remedial programming:

1) Self-paced Instruction
2) Individualized Instruction
3) Behavior Modification
4) Individualized Programmed Instruction
5) Goal Setting
6) Counseling Interaction
7) Self Concept building
8) Group Proccssing
9) Mechanized Learning Programs
10) Computer Assisted Programs
11) Study Skills Programming
12) Student Monitoring Programs
13) Academic Intervention Programs
14) Interactive Learning Systems

In addition to the techniques mentioned above, masses of textbooks and instructional materials have been marketed for the population. The number and variety of these materials and instructional techniques seem to be quite inexhaustible. As to their effectiveness, on the surface some instructional techniques do seem to promote learning; however, in the long run, results are far from encouraging. In conclusive research covering four decades and 91 studies comparing teaching methods, Dubin and Taveggia (1968) have demonstrated unequivocally that "there is no measurable difference among truly distinctive methods of college instruction when evaluated by student performance on final examinations." The variety of student learning styles within any typical classroom will always insure that any specific instructional style (independent, lecture, discussion, etc.) will be effective for only <u>part</u> of the group. If one varies the instructional style, he will help only the particular group of students that prefers that style. Dubin and Taveggia appropriately refer to the vast amount of literature describing assorted instructional styles as "the sound and fury signifying nothing."

It is apparent to us that the answer to the dilemma of the collegiate non-learner does not lie in our attempts to discover and use the "proper" method

of presenting information to our students. Rather, we should be asking ourselves, "What makes a successful learner achieve, and how can our knowledge about the successful learner be applied to the predicament of our developmental students?"

Our initial treatment of the non-learner: goal setting

We mentioned above that our sample group of academically average students (what one could realistically term "successful" students) appeared to have internalized some method of using the resources at their disposal to achieve. In our initial attempts to provide remedial students with a learning process that would be results-oriented, we turned to a management theory that has been quite successful in the business world--management by objectives (MBO). We directed our efforts toward goal setting. We wanted to induce the student to plan, manage his time, set realistic objectives and produce work by adhering to an organized learning strategy.

It is no great revelation that virtually every facet of modern life is governed by time; therefore, practically everything any of us does involves time management. From our arising each morning to the sound of an alarm, to our concern for punctuality in meeting classes or attending meetings, to our structuring of the evening's activities, each of us--student and instructor alike--must learn to manage time. Hence, our first

management concern for our deficient students had to do with the use of time. When we asked our students to identify the specific ways in which they employed their time during an average day, most were not really shocked to find that only an infinitesimal amount of attention was devoted to studying. The students simply had no idea of what "studying" really is. And it was hard to convince most of them that because they were deficient, they needed to spend considerably more time studying than did the students enrolled in the regular college credit program. Part of our effort, then, was to insure that the students would plan the use of their time in ways that would be academically productive.

We devised a goal setting format for weekly classroom use. The idea was to have the instructor inform his students each Monday of the class's reading assignments and educational objectives for the week. Objectives were to be stated in terms precise enough to permit the students to translate them quite readily into personal goals on a form that represented a contract of sorts. Each student-stated goal was to be realistically achievable, written in terms of what was to be done and by when, and was to be measurable. That is, the student had to be able to prove, through the presentation of written work, that he had done what he set out to do.

In addition to stating weekly goals, the student also had to indicate, on a daily basis, how he intended to "process" or accomplish his objectives. We also asked each student to list on his weekly form the "barriers" that he felt might interfere with the production of work (too much television, athletic activity, socializing, and so on); at the same time, the student was to consider and state how he might overcome such barriers. Upon completion of the form, the student was to have the instructor review it and make suggestions. Finally, both student and instructor were to sign the form, which was prepared in duplicate. The student kept the original as a reminder, and the carbon copy went into a student folder. Appendix A is a reproduction of our "Weekly Goal Setting Form" as filled out by a typical student.

In evaluating our initial intervention strategy, we had to conclude that it had beneficial effects, as well as major deficiencies. Short-run results were encouraging, and if the objective of learning or instruction is to guarantee the production of work, then the program was a success. Among the positive aspects of the goal setting process were: frequency of feedback, clarity of intended outcomes, reality testing of student expectations, development of time management strategies--all worthy virtues; however, after a short period we

became aware that goal setting was not the total answer. Students did in fact produce work, but without paying much attention to the quality of their product. The exercises seemed empty, with students making little attempt to internalize the content of their endeavors. It became obvious that students saw no purpose in their activities other than their completion. It was time for us to analyze possible shortcomings in our program. Specifically, we wanted to identify the significant aspects of wanting and being able to learn that we had neglected. Toying with various graphic models of the learning process, we hit upon a logical and simple conclusion that has since proved true for our developmental students. Generally, we arrived at the conclusion that what we must understand is not that our students don't know how to read, write, or manipulate numbers (we already knew those things), but why they don't know these academic basics.

The Dynamics of the Learning Process

Our conclusion led us to construct a learning model depicted in figure 3. The "keys" to the learning model are, simply stated, "wanting" and "being able" to learn. In other words, the important variables that go hand in hand with time and work management strategies are motivation and reasoning skills. As depicted in the model, in any

classroom a student ultimately becomes involved in a decision as to the value of content, and he will ask, "Is the content relevant?" This simple question and its answer are easily misunderstood, because the student's response is governed not only by interest or need, but also by thinking ability. Thus, analytical reasoning skills are every bit as important as personal interest to a student seeking content relevance.

Our experience has taught us that the chief learning breakdown with remedial students is their inability to analyze logically the material presented. We have found that many remedial students simply lack the thinking skills necessary to derive meaning from many content materials. They become confused when asked to classify, compare/contrast, analyze cause-effect, note implications, and generally, perform most systematic operations with words or numbers. If students do not possess these necessary thinking skills, they certainly will not be able to personalize many kinds of important information. Our learning model thus takes into account both motivation and reasoning skills. A lack of either can, by itself, be responsible for blocking learning.

As our learning model graphically illustrates, a motivated, capable student will recognize content relevance and will become involved in an "interactive

loop" with the instructor and the content material (subject knowledge). Ideally, the time will come when the student internalizes both an interest in the material and a process for understanding and furthering his knowledge of it, to the point that he no longer needs an instructor to aid him in learning. Such self-directed learning should be the ultimate aim of all education.

On the other hand, the student who does not find content relevance, either because he is not motivated or because he lacks the intellectual skills necessary even to understand the material or the instructor's method of presentation, will be blocked from learning. The student will ask, "why should I learn this?" Or, he may mask his inability to understand with the familiar "I don't care" attitude. In any case, the teacher is challenged to create content relevance. If the teacher's attempts fail, the student will become a non-learner and will most likely regress into a passive or disruptive mode. The blocked student will remain in this alienated state until one or more significant conditions are altered: purpose (content becomes relevant), classroom climate, and/or the student's own reasoning abilities.

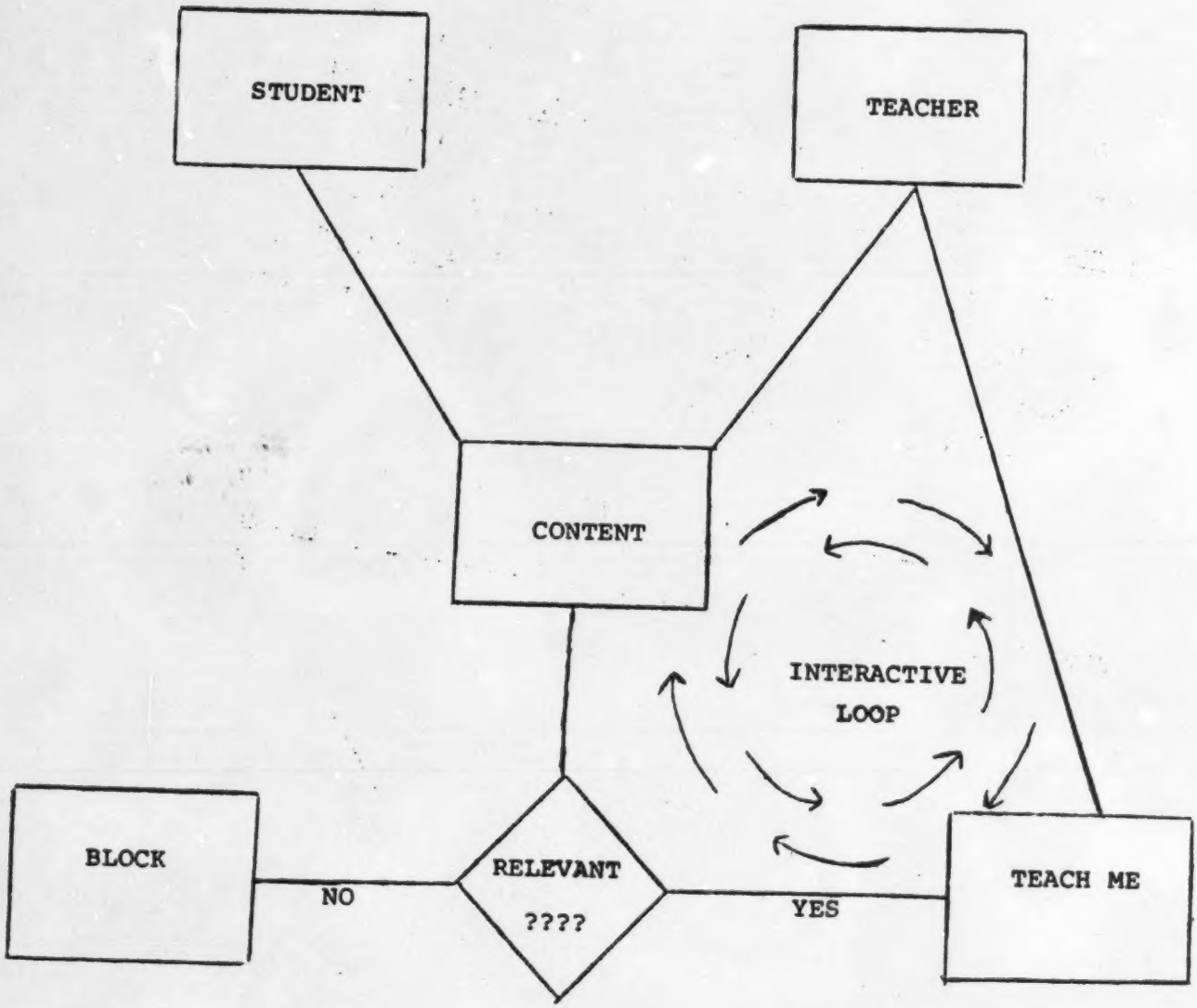


Figure 3

Figure 4 presents another way of looking at the keys to the teaching/learning process. Note that there are generally four areas of potential learning failure: (1) the student's purpose motivation, or his perception of why content is presented; (2) the classroom climate

motivation created by the instructor, or how and by whom the material is presented; (3) the student's ability to understand content materials as presented in texts and other resource materials, or his thinking skills applied to written materials; and (4) the student's ability to understand the instructor's spoken words, or his thinking skills applied to spoken explanations and directions. A breakdown in any one of the four areas can be sufficient cause to disrupt the learning process.

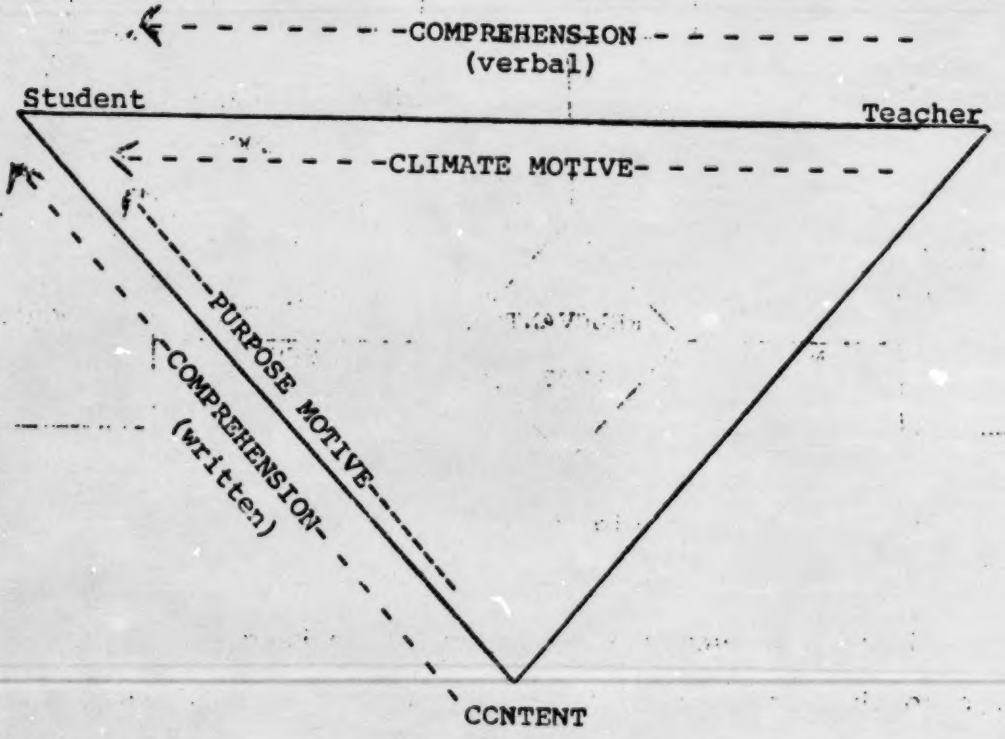


Figure 4

Purpose (content relevance) and classroom climate are motivational factors that will be discussed later. More basic to the problem of the student's determination of relevance is his ability to think. In order that a student be able to define the personal meaning of any material, he must first possess the analytical skills necessary to arrive at a decision. Therefore, prior to any form of content related instruction we must equip our students with the prerequisite thinking skills of learning. It is important to note, however, that motivation and attention to thinking skills can be accomplished simultaneously through temporarily setting aside content material and concentrating on simple interest areas.

Every student, no matter how deficient in basic academic skills, has interests. The instructor can use these interests to work on thinking skills. For example, a basketball player can be taught to compare/contrast, classify, define, and so on using only professional basketball players, teams, or techniques as subject matter. It is important that all learning "hit home," or possess relevance. As a student becomes increasingly competent in his thinking skills, he can direct himself to find relevance in more abstract content or in content that otherwise would not have seemed to "fit" into his world-view.

On Teaching Students How to Think

> "You are to be in all things regulated and governed," said the gentleman, "by fact. We hope to have, before long, a board of fact, composed of commissioners of fact, who will force the people to be a people of fact, and of nothing by fact. You must discard the word Fancy altogether. You have nothing to do with it. You are not to have, in any object of use or ornament, what would be a contradiction in fact. You don't walk upon flowers in fact; you cannot be allowed to walk upon flowers in carpets. You don't find that foreign birds and butterflies come and perch upon your crockery; you cannot be permitted to paint foreign birds and butterflies upon your crockery. You never meet with quadrupeds going up and down walls; you must not have quadrupeds represented upon walls. You must see," said the gentleman, "for all these purposes, combinations and modifications (in primary colours) of mathematical figures which are susceptible of proof and demonstration. This is the new discovery. This is fact. This is taste."
>
> --"Murdering the Innocents," from Charles Dickens' Hard Times

In Hard Times (1854) Charles Dickens created the Gradgrind School, where fact is "the one thing needful," and where instruction is presented in cold, logical terms. The students are labeled with numbers, rather than names, and the memorization of "useful" knowledge is the ultimate goal of education. In short, the Gradgrind School is an environment totally foreign to the kind of classroom climate advocated in the present discussion. By the end of Dickens' novel it is clear

that the "best" students of the Gradgrind School are the children who know the least about humanity. Today, modern theories of education and psychology bear out the point that rote mastery of information--or "fact"--is not a sufficient criterion for determining success in academics.

Without going into any complex theorizing about the relative merits of memorization, we can simply assert--with universal agreement--that the mere commission to memory of "facts" will not assure one of being an "educated" citizen capable of making intelligent decisions regarding voting, working, raising a family, cooperating with others and purchasing goods. In fact, if our students are to function as responsible persons and citizens in a democratic society, they must be prepared to make innumerable choices throughout the future, for one's life, especially in a democratic society, is a series of choices or decisions. Which products should I buy? What career should I pursue? Should I marry? Should I have children? What religious faith, if any, should I practice? Where should I live? How should I spend my leisure time? How should I vote? Such questions arise in everyone's life, and the answers to many of the questions will affect not only the individual but other persons as well. Hence, the importance of being able to make responsible choices. And certainly, we will all agree, reasoning ability--thinking power--is at the heart of decision making.

In his highly sensible Motivation for Learning (1974), Stanford Ericksen helps us to define the kind of thinking that all educators, particularly at the college level, should be attempting to foster in their classrooms. Writing of the importance of concept formation, Ericksen maintains that

> As a child proceeds through school, his concept learning becomes more complex to include open-ended ideas for which finite meanings are as yet unclear, such as freedom, individuality, justice, patriotism, and humanism. College-age students have the brain power to acquire, retrieve, and utilize abstract concepts. This, rather than their ability to memorize, is their distinctive talent. It follows, therefore, that college instruction should be oriented toward the learning of abstractions--concepts, principles, generalizations, and values. Courses composed only of descriptive storytelling or memorized recitals grossly underuse these intellectual capabilities.

Certainly, the kind of thinking required to form concepts is important for all students--not just for those who come to our institutions already prepared for college level work. While it is true that developmental students must master many "facts" by rote (e.g., the multiplication tables), it is also true that our treatment of them should have built into it practice with specific kinds of thought processes.

Perhaps one of the greatest faults of many developmental programs or courses is a lack of attention to basic

analytical problem-solving. As Arthur Whimbey, a noted expert on thinking and intelligence, contends, "The ability to proceed through a sequence of analytical steps is the foundation of all higher-order reasoning and comprehension. . . All complex abstractions, classifications, transformations, problem solutions, and applications of generalizations are products of accurate, sequential thought." Whimbey goes on to discuss the value of teaching students the steps involved in solving fairly simple word problems, such as "what day follows the day before yesterday if two days from now will be Sunday?" What Bloom and Broder term the "one-shot" thinker (the low-ability thinker) invariably does not separate the parts of such a problem before he begins to work out a solution. Whimbey's contention is that instructors can share with students the steps or process necessary to solve such a problem. Even quite simple analytical problems have a great deal of transferability to working out the solutions to much more complex problems. Sample problems are listed in Appendix B.

Once the student gains confidence and expertise in simple problem solving, he will have acquired a valuable cognitive skill. The importance of such an analytical reasoning skill is apparent in many of our everyday experiences. For instance, when an auto mechanic uses "troubleshooting" techniques to determine why a car won't

start, he must separate possible causes in order to test various hypotheses. The trouble could be in the electrical or fuel systems; within each of these systems there are numerous potential areas of malfunction: the ignition, the battery, the fuel pump, and so on. The trained mechanic usually has no trouble finding a solution very quickly.

In How We Think (1910) John Dewey outlined the famous problem-solving process--a process that is really exactly what the trained auto mechanic does each time he troubleshoots. Once we recognize or define a problem, we must hypothesize possible solutions. Only then can we analyze each potential solution and test our hypotheses. Finally, we form a generalization based on our data. Our students need to learn to reason in logical steps such as those outlined by Dewey.

In addition to working with our students on basic analytical reasoning, we ought to give a great deal of attention to their abilities to think in terms of different levels of intellectual processing. We have in mind here a hierarchy of verbal reasoning abilities such as that discussed in the Taxonomy of Educational Objectives edited by Benjamin Bloom. An instructor's test questions, as well as class discussions, can be carefully constructed to give students an opportunity to think in terms of a wide range of intellectual processes. Appendix C is a

manageable hierarchy with typical types of questions that an instructor might ask.

Spache and Spache report on a simple experiment through which Keislar demonstrated the importance of giving attention to higher mental processes in teaching reading:

> A group of pupils was trained to expect a number of questions stressing only main ideas when they completed each daily reading assignment. A second, comparable group was required to answer questions which consistently emphasized only the details of their reading. After a period of training, the questions were switched one day and each group was asked to answer the other's type of question. When faced with a different question most of the children were completely at a loss. They simply hadn't employed that kind of thinking. How much thinking or reasoning does the average reader use spontaneously? Apparently only that degree or kind that enables him to fulfill the minimum of the demands upon his comprehension. . . . The point has been made here that although certain higher mental processes may be important in reading, they are not always present in every pupil's reading act. In fact, the more advanced reading habits, such as we speak of in critical reading, may never appear unless the student is specifically trained for them.

On Assessing Thinking Abilities

We stated above that our remedial students often do not possess the reasoning skills necessary to obtain meaning from the content material that we must present to them or to carry out an assignment in any but the most mundane, concrete fashion. Certainly all of us will admit

to observing a pathetic lack of meaningful thought in much of our remedial students' written work, comprehension of reading materials, and analysis of mathematical problems. But we must keep in mind that just as our students come to us with individual levels of content mastery, so do they possess different levels of reasoning ability. A good example of the range of thinking abilities in a group comes from the following class discussion. Students were asked to name important characteristics of a specific political leader. Some students, operating at the most concrete thinking level, responded that "he's big" or "he has brown hair." Others, thinking in more abstract terms, replied that "he's wise" or "he's a good man." Still others contended that "he makes important decisions about government spending" or "he supports welfare programs."

An instructor can fairly easily gain valuable insight as to the reasoning abilities of his students through short individual conferences. Just as the Informal Reading Inventory (IRI) can help the instructor pinpoint reading weaknesses, so can an "Informal Thinking Inventory," as it were, be devised to obtain general information regarding thinking abilities. While such an informal inventory can by no means be used to evaluate intelligence, it can help the instructor to understand the nature of his students and plan course work accordingly.

We cannot at this point offer an established procedure for quickly testing a student's thinking skills, but we can offer some useful suggestions. First, the instructor's informal discussion with the student must be centered around a known student interest area, perhaps an area identified on a "student information" card completed for the instructor. This, of course, is to insure that the student will have something to say! Next, the instructor should work into the discussion questions that will require the kinds of reasoning abilities outlined in Appendix B. Such a process could be very time consuming; however, if class size is a problem, the instructor can limit his questions to those dealing with inductive/deductive reasoning and perception of relationships (comparison/contrast; cause/effect, for example), for these mental processes are absolutely essential to mastery of college level material. Those students who demonstrate severely deficient reasoning skills probably need practice with fairly simple problem solving, as well as with higher order mental processing. Again, we refer the reader to the kinds of problems suggested in Appendix B.

Once we begin to recognize that thinking skills are prerequisite to the mastery of content, we can also see that such skills affect motivation to learn. In the

next section we will examine motivation as purpose and climate and offer some suggestions for course management.

Motivation: External vs Internal

It is important for the reader to understand that the ensuing discussion of motivation is directed toward the internal as opposed to external realm. The reason for this intention is clear. External motivators produce only short term results, whereas internal factors are more continuous in nature. Frederick Herzberg in his essay, "One More Time: How do you Motivate Employees?" refers to external motivators as negative and positive KITA. We will leave the lettering to your imagination. The two forms of KITA differ in their approach to motivation in that negative KITA motivates through pain, and positive KITA through pleasure. To elaborate, one motivating through negative KITA would reprimand or penalize for inappropriate behavior, whereas positive KITA practitioners will reward desired behavior. As Herzberg explains it, one may motivate a dog to move by kicking it in the rear, or by attracting it with a dog biscuit. In either case, the question arises as to who is motivated, the dog or the master. Who is manipulating whom? Anyhow, it is clear that both KITA motivators are external and only effective over the short run. They have the effect of charging a battery; eventually the charge depletes and

a recharge is necessary. Obviously, the quality of external motivators is minimal. In education, the use of external motivators is quite prevalent. How many forms of KITA are used in our remedial programs? Grades, verbal or written reprimands, the elementary schooler's star on the forehead--these are all forms of KITA.

The Purpose Motive

The alternative to the external form of motivation is achieved through an internal or intrinsic application. Herzberg describes internal motivation as installing a generator within a person, giving him the capacity to generate or recharge his own achievement battery. Possibly the best method of motivating internally is through the interest or purpose motive. Our earlier discussion of content relevance is based in the purpose motive. That is, the content of instruction may, in itself, be a motivator if it "fits" with one's personal motives or needs.

We can regard as law that for each of an individual's needs or desires there is a corresponding motivator. As Maslow put it, there is a hierarchy of human needs. One does not concern himself with higher-level needs, such as self-actualization, until the more basic needs (such as those for security and love) are met. Needs are attended to when the motivation is pressing. In terms of the non-learner,

given that the students possess the necessary thinking skills required to deal effectively with the content at hand, we can postulate that the learning of algebra, English grammar, and reading skills is not very high on the "pressing needs" list. One of the most basic problems of the non-learner, then, is his inability to find relevance in the academic work that we tell him he must do. As is true of any situation in which an authority figure decides what is important for his subordinates, the instructor-student relationship in an academic institution must have built into it motivational factors to "sell" the need for task performance. Students must be able to recognize relevance; otherwise, they will question the importance of what their instructors view as necessary information.

It is interesting to note here that one of the reading passages in the 1972 Comparative Guidance and Placement Test (Educational Testing Service) deals with the question, "what is important information?" Note the implication that what is "important" to students is oftentimes neglected in the classroom:

> Hierarchies derive their authority from the assumption that there is unequal access to information. Those at the top have access to more information than those at the bottom, and that is why some are at the top and the others are at the bottom. But today those who are at the bottom of the school hierarchy, the students, have

> access to at least as much information about most subjects as those at the top, teachers and administrators. At present the only way control can be maintained over the students is by carefully discriminating against what they know; that is, by labeling what the students know as unimportant. On the other hand, if cinematography, mass communication, popular music, race relations, or urban life were made major subjects, even an elementary school might then find itself in a situation where the faculty were at the bottom and its students at the top. Certainly, it would be hard to know who were the teachers and who the learners.

All too often educators do discriminate against what the students know; we sometimes even neglect what they want to know. Perhaps our "discrimination" is due to our own beliefs about what has traditionally been considered the "proper" academic curriculum. Certainly, it is quite difficult to convince many students that some of our "traditional" courses are really important. For instance, when is the last time that one of us tried to sell a remedial student desiring to major in sociology on algebra?

We know that reading, English, and mathematical skills are important for educated persons. Indeed, such skills are desirable for all citizens, whether college-educated or not. But as educators concerned about developmental students, our job involves much more than the formulation of course objectives, the presentation of material, and evaluation of student progress. Rather than beat our brains for new and better methods of putting information into our student's heads, we should be considering

how we can help them to want to learn. Therefore, it is essential that educators present material which taps into the purpose motive of the student. Instructors can actually regenerate a turned off student's desire for learning by helping him find purpose or content relevance in his studies. Abraham Maslow in Personality and Motivation makes the following statement with regard to the vital role played by the purpose-related esteem needs of individuals:

> satisfaction of the self-esteem needs leads to feelings of self confidence, worth, strength, capability, and adequacy, of being useful and necessary in the world. But thwarting of these needs produces feelings of inferiority, of weakness, and of helplessness.

The strikingly external Nowicki-Strickland and SPPI Locus of Control Scale results of our remedial students supports the occurence of what Maslow refers to as a thwarted esteem need. As developmental educators we must help our students rebuild their feeling of self-worth by presenting them understandable material linked to their personal interests and life related conditions.

It is the responsibility of the instructor to present material that is relevant, and the responsibility of the institutional administration to assure that curriculum design makes sense in relation to intended outcomes. In addressing the latter, it is of utmost importance that administrators construct a curriculum design directly applicable to realistic, life related outcomes. Without

such relevance in the broad picture, it will become nearly impossible for the instructor to move his/her students into the interactive loop of our learning process. Therefore, administrators must ask the following questions prior to curriculum design:

1) What skills do we wish the students to possess?

2) Of what relevance are these skills to real life situations?

Administrators must arrive at hard factual answers to these questions; otherwise, curriculum design is doomed to be meaningless and irrelevant. To reiterate, curriculum design must be related directly to life skills! Without such formal planning, the difficulty of the instructor's task becomes tremendously compounded, and the risk of student alienation is multiplied.

On the instructional level, given that course content does make sense and may provide life skill enhancement, the burden of relevance then falls on the teacher. Relevance must be immediate. It is of little consequence to tell a student that the material will aid him in later life. This is not relevance; it is trust, and although some students may respond to trust, the risk of alienation is much greater given such a situation.

In addressing the purpose motive, we feel that it is important for instructors to be aware that the presence of content relevance becomes progressively more crucial as the level of learner ability diminishes. Piaget's progression of learner competency bears out the precision of this statement. Lower level learners locked in the concrete learning stage must see immediate content relevance. As the individual progresses to higher levels of thinking, say to the abstract thinking or formal operations stage, then the need for immediate content relevance is not as great. Students possessing higher level learning skills may be able to think broadly enough to see applicability of material which the more concrete learner could not visualize. For example, it is really quite ridiculous to ask a student crying for content relevance to interpret sophisticated passages of ancient literature. Such a request would only serve to deepen the wounds of a damaged self-image.

Satisfying the Purpose Motive

As suggested, it is possible to enhance learning effectiveness by tapping the interests of a student. In order to do this, however, it is necessary that the instructor know the student and that the student know himself. Hence, it is clear that a student's ability to personalize or see benefit from instruction is in direct

proportion to the degree to which he understands his own motives and desires. That is, as a student's level of self awareness rises, so does his ability to find relevance in new learning material. Consequently, it is important that we help students discover more about their own interests and motives by engaging them in a self-exploration process. In that regard, we can see that Piaget's concept of learner abilities is once again applicable. For example, in considering the more concrete learner, it may not initially be possible to carry self exploration beyond the basic interest or needs level. Logically, then, instruction should be geared to satisfy the purpose motive of that level. However, with a higher level thinker, one may focus both instruction and exploration on high level purpose motives such as vocation or careers. In either case, the emphasis remains on relevance and instruction is keyed to the purpose motive of the individual.

On Defining Interests

The process of interest identification does not have to be a psychoanalytic one reserved for the sanctity of the counselor's office. On the contrary, it requires only the ear of a truly interested instructor. It is usually fairly easy to discover the interests of verbal students. A simple assessment of their daily routines may hold the key to defining interest areas. Bear in

mind, however, that in interest definition, the student is in the driver's seat. Instructors may serve only to clarify students' feelings and help them put the puzzle together. If you would like to be somewhat more systematic about the process, there are a variety of career tools available that relate interest areas to career groupings. Richard Bolles has produced at least two books which are loaded with interest identification activities. The "Self Directed Search" by Holland is an interest inventory which is extremely effective. In addition, Cotroneo has a "Career Exploration Package" which provides a compilation of structured classroom activities on vocational exploration. For a more extensive list of interest identification material and publication, see Appendix D.

The Climate Motive

In an important experimental study on organizational climate and motivation, George Litwin found that distinct organizational climates can be created through the presence of specific kinds of leadership styles. Litwin's study deals with business organizations; however, his findings regarding leaders and subordinates are quite appropriate to a classroom situation--where the instructor is the "leader" and the students are "workers" or subordinates. Litwin identifies three leadership "types" that are associated with characteristic behaviors:

1. Achievement motivated--having a need for success; having standards of excellence.
2. Affiliation motivated--having a need for close relationships.
3. Power motivated--having a need to control or influence others.

The above leadership motives are summarized as follows:

> Achievement-motivated individuals set high but realistic goals, are likely to plan ahead, enjoy taking personal responsibility, and are desirous of prompt and concrete feedback on the results of their actions. Affiliation-motivated individuals seek warm relationships and friendship. They are not concerned with getting ahead but enjoy jobs where they can be with people and help people. Power-motivated individuals tend to seek positions of power or influence; they are politicians, executives, military officers, and teachers.

In summarizing his data, Litwin found that in terms of employee job satisfaction and job performance (productivity) the following occurred:

Motive	Satisfaction	Performance
Power	Low	Low
Affiliation	High	Low
Achievement	High	High

The study revealed that "once created, these climates seem to have significant, often dramatic, effects on motivation, and correspondingly on performance and job satisfaction." In addition, "significant changes in relatively stable [employee] personality factors can be created in less than two weeks. . . ."

Of what significance to educators are Litwin's findings? Obviously, any instructor creates a classroom "climate" through his behavioral relationship to his students. Moreover, this "climate" is created rather quickly and once established affects student motivation tremendously It would appear that both the classroom "dictator" and the instructor who desires, above all else, to be everyone's "buddy" and "keep the peace" are bound to detract from student satisfaction and performance, respectively. On the other hand, the instructor who fosters mutual respect between himself and the student through setting clearly defined objectives, encouraging innovation, rewarding excellence, stressing cooperation, creating pride in accomplishment, and offering challenge, is likely to nurture achievement-oriented students.

"Mutual respect" is undoubtedly the key to positive classroom climate. In a recent interview Malcolm Knowles addresses this very point, calling it "prerequisite" to any other teaching consideration involving the adult student. Knowles contends that

> There are seven elements or procedures which the teacher of adults has to consider. The first, and the prerequisite one, deals with establishing a climate that is conducive to learning. This meansproviding experiences in an atmosphere in the classroom, workshop or institute in which the learners feel respected and in which they feel secure, supported, non-threatened, collaborative rather than competitive, trusting of one another and trusting of the teacher,

> liked, cared about, cared for, comfortable, informal, relaxed. These conditions are more conducive to learning than their opposites: cold, aloof, rigid, one-way transmission, judgmental, competitive. Creating such a climate conducive to learning is a step not usually considered in traditional education. The students walk into the room and the transmission of content starts. No time is given to creating relationships or feelings of respect and trust.

Recently, members of a faculty development program at Middle Georgia College had an informal discussion on classroom climate with several students of varying abilities and interests to determine whether or not an environmental "common denominator" influencing student satisfaction exists. One faculty member took careful notes on each of the points brought up by students. His notes reflect the immense importance of <u>respect</u> in creating climate:

Positive and Negative Effects on Classroom Climate

PI: Teachers who are interested in what they teach
*PI: Instructors' respect for students
PI: Respect teacher so much as to want to learn for him
*PI: Instructor should care if you learn the material
*PI: Learning names of the students is important
*PI: Reading body language, calling on students who look confused
*PI: Teacher talks to you, not at you; teacher on your level
*PI: Feel like you can go to teacher with your problems
*NI: Cold and impersonal attitude
*PI: Small size of college for the "caring aspects"
*PI: Teacher availability (office hours, present throughout day)
*PI: Show concern for whole class, not 2 or 3 students in class
*NI: Having the attitude that you are Ph.D. and students are peons
NI: Assuming students know more material than they really do
NI: Assume students can get material from the book by themselves
PI: Teachers who enjoy their subject
*NI: Sarcastic attitudes
*NI: Ego trips by instructor
*NI: Lectures from the book
*PI: Relevancy of material
*PI: Practical applications of material
*NI: Poor teacher attitude toward students
*PI: Relevancy
*NI: Lazy attitude
*PI: Systematic teaching
*NI: Teachers who give answers even when they don't know the answer
*PI: Teachers who challenge and push students to their limit
*PI: A flexible pacing of course material so as not to go too fast
*PI: Knowledge of what is expected of student at beginning of course
*PI: Tactfulness on part of instructor
*PI: Explain why something is done so it doesn't appear to be busy work

Translation: An instructor who makes his students feel good about their learning is one who shows concern and respect for his students.

*Notes compiled by Ron Delorenzo, Ph.D., February 27, 1981.

Mutual respect implies two-way communication and a sharing of ideas and feelings. There is no place in the ideal classroom environment for the instructor who regards his students as cattle to be herded together, fattened on factual information, branded as either successes or failures, and sent to the "slaughter" because they have not learned anything that could not be memorized. Rather, the instructor should take the time within the first few days of a term to begin to create the kind of climate which Knowles speaks of above. One example of positive climate creation involves the use of information obtained from the Canfield Learning Styles Inventory and the Canfield Instructional Styles Inventory.

Students in a particular class might be shown their own learning styles profiles. At the same time, the instructor could share with the students his own instructional style profile, say through the use of an overhead projector. Then the instructor might discuss important aspects of who he is and how this information has a bearing on what is likely to happen in his class. By means of such a procedure each student can compare his or her learning style to the teacher's instructional style and begin to pinpoint possible areas of conflict to be discussed individually with the instructor. Obviously, such a practice would demonstrate a caring attitude and be of real value to the learner.

Our chief goals in education, regardless of whether or not we are dealing with remedial students or high school valedictorians, should be to help students to want to learn and to help them to learn how to learn. Therefore, it is vitally important that educators pay specific attention to the climate which they intend to foster in the learning process.

Creating Climate Motivation: A Systems approach to process Relevance

As previously stated, the achieving environment contains some specific attitudinal variables which directly influence the motivation of the learner. It is important to note that these success related variables can be incorporated into a structured learning system. Robert F. Mager in Goal Analysis presents an achievement motivated instructional approach which concentrates on what we term process relevance.

Throughout our discussion we have referred to the concept of content relevance. At this point, we would like to introduce process relevance. Specifically, process relevance refers to the degree to which the process of instruction is keyed to intended outcomes. Process relevance can be maximized through the use of clearly defined and stated instructional objectives. Relevance requires

an intense analysis of 1) where students are on the learning/thinking continuum, 2) where they need to be in order to be considered competent, 3) how you intend to get them to that level of competence, and 4) how you will know when they have arrived.

A process relevant learning system devised by Robert Mager provides a structure and direction typically foreign to the instructional environment. If carried through, the system can, in a sense, remove the mystery from learning. As a result, both student and instructor become acutely aware of the intended direction of instruction and the specific performance criteria which display competence. The process becomes not only relevant, but very concrete. As a summary to the instructional objective process, Mager offers the following five steps:

> Step one: Write down the goal.
>
> Step two: Jot down, in words and phrases, the performances that, if achieved, would cause you to agree the goal is achieved.
>
> Step three: Sort out the jottings. Delete duplications and unwanted items. Repeat steps one and two for any remaining abstractions considered important.
>
> Step four: Write a complete statement for each performance, describing the nature, quality, or amount you will consider acceptable.
>
> Step five: Test the statements with the questions, if someone achieved or demonstrated each of these performances, would I be willing to say he has achieved the goal? When you can answer yes, the analysis is finished.

If the above process seems to be too much to go through, consider the following dialogue offered by Mager:

Doctor: Ah, good morning, madam.

Madam: Good morning, doctor.

Doctor: Just a moment and I'll have your prescription all written out.

Madam: Wait a minute. . .

Doctor: No time like the present, you know.

Madam: Don't you examine people?

Doctor: What for? I've been trained by one of the best schools, and I know what most people need in the way of treatment.

Madam: You give everybody the same treatment?

Doctor: Of course. Saves time.

Madam: That's crazy!

Doctor: Not at all. Most patients improve. Some improve more than others, of course, but that's mostly because they try harder.

Madam: What about the ones that get worse?

Doctor: No problem. I label them as failures and send them on...and on...and on. Oh, by the way, why are you here?

Madam: I was the new cleaning lady. And good-by!

Of course, what Mager is suggesting is that we intently consider the specific learning needs of our students, rather than give the shotgun treatment approach of the insane doctor

in the conversation. The Magerian objective system can insure that at least the process of instruction is relevant.

The process of instruction is the one aspect of the student's classroom experience that the student himself most often regards as, in essence, "the course." Typically, from the moment he even considers registering for a course the student is interested in what he must do to satisfy the instructor. Because most students are single-mindedly grade-oriented, they falsely equate the process of instruction to the result. If an instructor allows students to "get by" with substandard work, or if the instructor fails to organize his course around meaningful objectives, most deficient learners will not be concerned--as long as they receive a passing grade. But what, really, will the grade signify?

On the other hand, if the instructor has planned his course with the purpose motive in mind, if he has challenged his students' reasoning abilities, and if he has established process relevance through the exercise of a management system of meaningful, measurable objectives, the student's grade will represent a significant result.

Summary

We have attempted to present some useful observations on the nature and treatment of the non-learner. Our obser-

vations are not intended to be solutions to problems; rather, they are aimed at generating thought, research, and program design that will be beneficial to both instructor and student. Summarized here are the major points that we have considered.

The non-learner is an externally-controlled student who has undoubtedly been conditioned to expect both failure and "success." He knows that he is deficient in basic skills areas, and he has probably become resigned to perpetual deficiency. On the other hand, he has found that social promotion and a high school diploma come to those who "only stand and wait" (we know that this is not what Milton had in mind). Given the nature of the non-learner, developmental educators cannot hope to achieve positive results through the manipulation of only the external variables of the teaching-learning process. There is no one magical way to present content material without considering the "keys" to the learning process.

The important broad components of the learning process are thinking skills and motivation. A lack of either will negate any attempts to teach. Thinking skills include both basic analytical reasoning (problem-solving) and higher order intellectual processes (appendix C). Without the ability to reason effectively, the student can never hope to master college level material. Instructors

should attempt to evaluate their students' thinking skills and should devote class time to improving reasoning.

Motivation can be divided into two basic categories: Purpose motivation and climate motivation. Purpose implies a reason for doing something; climate refers to the conditions under which it is done. The student must feel a need to learn, or, at the least, he must have an interest in what he is doing. Without a perceived purpose, the student will likely learn practically nothing. The conditions under which the student is asked to learn should involve mutual respect between instructor and student. In addition, the process of instruction must be relevant. That is, the instructor must organize his course around meaningful measurable objectives that are directly related to the student's perceived purpose in task performance.

Appendix A

WEEKLY GOAL SETTING FORM

1) WEEKLY GOAL(S)

   1) Complete all exercises on punctuation, pages 142-176 in English text by Friday, March 6. Check answers.

   2) Write two practice paragraphs free of punctuation errors by Thur. March 5. Have instructor check paragraphs after class. (make appt. to see instructor)

   3) Write three sentences for each of the six rules of comma use on page 161. Do by Sun. night, March 8.

2) POTENTIAL BARRIERS

   1) Sleeping too much

   2) Staying at girls dorm too long at night

   3) Watching too much TV

   4)

3) BARRIER MGT. OBJECTIVES

   1) Go to bed by 11 each night so that I won't be tired all day.

   2) Don't go to girls dorm until my homework is done.

   3) Watch only 6:00 news and one other show each night.

   4)

PROCESS OBJECTIVES

	GOAL (1)	GOAL (2)	GOAL (3)
Monday	1) Read pp 142-176	1) Write a para and try to avoid punctuation errors	1)
Tuesday	2) Do exercises 1-3 and check answers	2) Make appt tc go over paragraphs	2)
Wednesday	3)	3) Write another para	3)
Thursday	4) Do exercises 4-7	4) Make appt to go over paragraphs	4)
Friday	5) Do exercises 8-10	5)	5) Write sent. for comma rules 1-3
Saturday	6)	6)	6)
Sunday	7)	7)	7) Write sent. for comma rules 4-6

Student Signature

Appendix B*

Sample problems requiring sequential analytical thought:

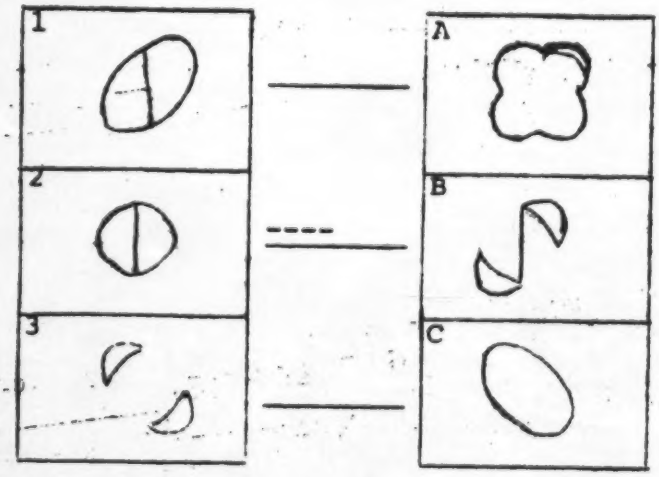
1. Ten full crates of walnuts weigh 410 pounds, while an empty crate weighs 10 pounds. How much do the walnuts themselves weigh?

   a) 400
   b) 390
   c) 310
   d) 510
   e) 420

2. If the word "sentence" contains fewer than nine letters and more than three vowels, circle the first vowel. Otherwise, circle the consonant that is farthest to the right in the word.

3. If deleting the letters "r, i, and e" from the word "surmise" leaves a meaningful three-letter word, circle the first "s" in this word "surmise." Otherwise circle the "u" in the word "surmise" where it appears for the third time in the exercise.

4. Look at the figure at the right of the page. For each drawing in the left column, there is a drawing in the right column which completes it. Write the number and the letter of the two drawings you combine to make the complete figure.



*Problems 1 and 2 are from Arthur Whimbey, "Teaching Sequential Thought: The Cognitive-Skills Approach," Phi Delta Kappan (December, 1977). Problem 3 is from Arthur Whimbey, "Students Can Learn to be Better Problem Solvers," Educational Leadership (April, 1980). Problem 4 is from Nicholas Hobbs, "Feuerstein's Instrumental Enrichment; Teaching Intelligence to Adolescents," Educational Leadership (April, 1980).

Appendix C

TYPES OF QUESTIONS/INTELLECTUAL PROCESSES

1. Memory--recognizing or recalling information as given in the passage. We can distinguish four kinds of ideas on the memory level of thinking.

   (a) facts--

   Who did _____?
   When did _____?
   How many _____?

   (b) definitions of terms used, and perhaps explained, in the text--

   What is meant by _____?
   What does _____ mean?
   What meaning did you understand for _____?
   Define _____.
   Explain what we mean by _____.

   (c) generalizations--recognizing common characteristics of a group of ideas or things

   What events led to _____?
   In what three ways do _____ resemble _____?
   How did _____ and _____ effect (cause) _____?

   (d) values--a judgment of quality

   What is said about _____? Do you agree?
   What kind of a man was _____?
   What did _____ do that you wouldn't?

2. Translation--expressing ideas in different form or language

   Tell me in your own words how _____.
   What kind of a drawing could you make to illustrate _____?
   How could we restate _____?
   Could we make up a play to tell this story?
   What does the writer mean by the phrase _____?
   Write a story pretending you are _____.

3. Interpretation--try to see relationship among facts, values, generalizations, etc. There are several types of interpretatic

   (a) Comparative--are ideas the same, different, related, or opposed?

   How is _____ like _____?
   Is _____ the same as _____? Why not?
   Which three _____ are most alike _____?
   Compare _____ with _____ in _____,
   How does _____ today resemble _____ in _____?

(b) Implications--arriving at an idea which depends upon evidence in the reading passage

What will _____ and _____ lead to?
What justification for _____ does the author give?
If _____ continues to _____, what is likely to happen?
What would happen if _____?

(c) Inductive thinking--applying a generalization to a group of observed facts

What facts in the story tend to support the idea that _____?
What is the author trying to tell you by _____?
What does the behavior of _____ tell you about him?
What events led to _____? Why?

(e) Cause and Effect--recognizing the events leading to a happening

Why did the man _____?
How did the man make _____ happen?
What two things led up to _____?
When the woman _____, what had to happen?
Why did _____ happen?

4. Application--solving a problem that requires the use of generalizations, facts, values, and other appropriate types of thinking

How can we show that we need a traffic policeman at the crossing at the south end of the street?
If we want to raise money for our club, what sorts of plans will we have to make?
John has been ill for several days. What could we do to help him during his illness? To show him we think of him?

5. Analysis--recognizing and applying rules of logic to solutions of a problem; analyzing an example of reason

Discuss the statement, "All teachers are kind and friendly."
Some people think that boys can run faster than girls. What do you think?
John was once bitten by a dog. Now John dislikes all dogs. Is he right or wrong in his feelings? Why?

6. Synthesis--using original, creative thinking to solve a problem

   What other titles could you think of for this story?
   What other ending can you think of for this story?
   If John had not_____, what might have happened?
   Pretend you are a manufacturer of pencils who wishes to produce a much better pencil. Tell what you might do.

7. Evaluation--making judgments based on clearly defined standards

   Did you enjoy the story of_____? For what reasons?
   What do you think of_____in this story? Do you approve of his actions?
   In the textbook, the author tells us that_____ felt_____.
   This story has a very happy ending. Should all stories end happily? Why not?
   The author of our textbook apparently believes that the American colonists were right in their actions. Do you agree? What do you suppose the British said about the colonists?
   Write a short story about your favorite person in history. Tell why this person is your favorite.

The outline is taken from George and Evelyn Spache's Reading In the Elementary School and is based on categories discussed by Sanders in Classroom Questions: What kinds?

Appendix D

(1) Bolles, R.N., The Three Boxes of Life. Ten Speed Press, Box 7123, Berkeley, California 94707, 1978

(2) Bolles, R.N., What Color is your Parachute? Ten Speed Press, Box 7123, Berkeley, California 94707, 1978

(3) Cotroneo, K.J., The Career Exploration Package. 608 3rd St., Cochran, Georgia 31014, In-Cite Materials, 1980

(4) Crystal, J.C., Bolles, R.N., Where Do I go from here with my Life? New York: Seabury Press, 1974

(5) Figler, H., Path: A career workbook for liberal arts students. Cranston, R.I., Caroll Press, 1975

(6) Georgia Career Information System Card Sort. Georgia State University, Box 1028, University Plaza, Atlanta, Georgia 30303, 1980

(7) Holland, J.L., The Self Directed Search. Consulting Psychologists Press, 577 College Ave., Palo Alto, California 94306, 1977

(8) Holland, J.L., Making Vocational Choices: A theory of careers. Englewood Cliffs, N.J., Prentice Hall, Inc., 1973

(9) The Occupational Outlook Handbook 80-81. U.S. Dept. of Labor Statistics, The Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, 1980

References

1. Albrecht, Karl, "Newest Challenge for Trainers: Teaching Trainees How to Think," Training (March, 1981)

2. Bloom, Benjamin S. and L. Broder, Problem-Solving Processes of Developmental and Remedial Education (Fall, 1980).

3. Canfield, Albert A., The Learning Styles Inventory, Ann Arbor: Humanics Press, 1976.

4. Cooke, W. B., Resources for Student Learning Research Report," Whiteville, N.C.: Southeastern Community College, 1977.

5. Dubin, Robert and Thomas C. Taveggia, The Teaching-Learning Paradox: A Comparative Analysis of College Teaching Methods, Eugene, Ore.: University of Oregon, 1968.

6. Ericksen, Stanford C., Motivation for Learning, Ann Arbor: University of Michigan Press, 1974.

7. Hobbs, Nicholas, "Feuerstein"s Instrumental Enrichment; Teaching Intelligence to Adolescents," Educational Leadership (April, 1980).

8. Leavitt, H.J. and L.R. Pondy, Readings in Managerial Psychology, Chicago: University of Chicago Press, 1973.

9. Litwin, George and Robert A. Stringer, Jr., Motivation and Organizational Climate, Cambridge, Mass.: Harvard University Press, 1968.

10. Mager, R.F., Goal Analysis, Belmont, CA: Fearon, 1972.

11. Maslow, A.H., Motivation and Personality, New York: Harper and Row, 1970.

12. Maxwell, Martha, Improving Student Learning Skills, San Francisco: Jossey-Bass, 1979.

13. Rada, Heath, "An Interview with Malcolm Knowles," Journal of Developmental and Remedial Education (Fall, 1980).

14. Rotter, J.B., "Generalized Expectancies for Internal versus External Control of Reinforcement." Psychological Monographs, 1966.

15. Sanders, Norris M., Classroom Questions: What Kinds? New York: Harper and Row, 1966.

16. Spache, George and Evelyn Spache, Reading in the Elementary School, Boston: Allyn and Bacon, 1973.

17. Whimbey, Arthur, "Teaching Sequential Thought: The Cognitive-Skills Approach," Phi Delta Kappan (December, 1977).

18. Whimbey, Arthur, "Students Can Learn to be Better Problem Solvers," Educational Leadership (April, 1980).

19. Whyte, C.B., "Effective Counseling Methods for High-Risk Freshmen," Measurement and Evaluation in Guidance, 1978.

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